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Docee River Counting Fence 1988 Operations

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Canadian Data Report of Fisheries and Aquatic Sciences

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ABSTRACT

Winther, I., S.K. Bachen and R.D. Goruk. 1989. Docee River counting fence. 1988 Operations. Can. Data Rep. Fish Aquat. Sci. 767: iii + 11p. + Appendices.

The Docee River Counting Fence (Central Coast, B.C.) was operated from June 29 to August 12 of 1988. Managers operating the Smiths Inlet sockeye fishery use the inseason sockeye escapement data provided by the fence. In 1988, 201,963 sockeye were counted through the fence. Length and sex data were collected from 333 Docee River sockeye and age data were collected from 283 of these fish. Age 5_2 sockeye composed 57% of the fish sampled and had a mean hypural length of 51 cm. Age 4_2 sockeye composed 42% of the fish sampled and had a mean length of 44 cm. Mean hypural length was the same between sexes of the same age. The sex ratio of all fish sampled was approximately 1:1 but sockeye returning early and late in the run were predominantly female and those returning during the middle of the run were predominantly male. Fence and camp maintenance and operations are described.

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La barrière de comptage de la rivière Docee (dans la zone centrale du littoral de la Columbie-Britannique) a été en opération du 29 juin au 12 août 1988. Les gestionnaires de la pêche au saumon rouge de l'inlet Smith utilise les données saisonnières d'échappée reculillies à la barrière. La longueur et le sexe de 333 saumons rouges de la riviere Docee ont été déterminés de meme que l'âge de 283 saumons. Les saumons rouges d'âge 5_2 représentaient 57 % des poissons échantillonnés et avaient une longueur à l'hypural de 51 cm tandis que le groupe d'âge 4_2 formait 42% des poissons et avaient une longueur moyenne de 44 cm. Les longueurs moyennes à l'hyupural des mâles et des femelles de même âge étaient identiques. La proportion des sexes pour l'ensemble des poissons échantillonnés était de 1:1, mais les femelles étaient en plus grand monbre au début et à la fin de la montaison tandis que les mâles prédominaient au milieu de la montaison. Les opérations de maintenance de la barrière et des installations sont aussi décrites dans cet article.

INTRODUCTION

The Docee River is located in the Central Coast District of British Columbia within Canadian Department of Fisheries and Oceans Statistical Area 10 (Fig. 1). The Docee River is less than 1 km long, draining Long Lake into Wyclees Lagoon. Wyclees Lagoon empties North into Smith Inlet.

The Docee River counting fence has been in operation since 1972. Sockeye escapements into Long Lake have been monitored to provide in season estimates to Managers of the Smith Inlet sockeye fishery. The counting fence operates from late June to mid August.

METHODS

The Docee River Camp was opened May 29, 1988 to facilitate repairs identified in 1987 (Bachen, Thompson & Goruk, 1988). During the period when the camp was unoccupied it sustained little damage.

FENCE MAINTENANCE

Treated wood was acquired from Vancouver for replacement of the fence top deck, safety rails, lower cat walks and winch motor shed. A shallow draft landing barge contracted out of Campbell River was used to freight the materials to Wyclees Lagoon. Materials were unloaded onto the float at the bottom of the road to the camp. A helicopter was used to air lift the materials from the float to the fence site.

The fence was decked with treated wood planks. A half inch space (1.3 cm) was left between the planks to allow water to drain off. Safety rails were erected and a new winch motor shed was built. The fence counting strips and lower frames were painted and made ready for installation. Panel winches were bolted to the new decking and cables were replaced on all winches.

An aluminum welder was flown in by helicopter to weld cable guides and support bars to the aluminum fence panels. The welder ran out of argon gas and was flown out of camp. Approximately half of the support bars still need to be welded.

Two log jams had developed in the river, one at the mouth and another above the counting fence.The log jam above the fence was cleared with a jet boat and chain saw and the log jam at the mouth of the river was cleared by blasting. When the river was clear a shear boom was strung across the lower lake to prevent more logs and debris from drifting into the river.

CAMP MAINTENANCE

An extension was built onto the warehouse to house the generator, the All Terrain Vehicle and the fuel. The warehouse roofing was replaced with aluminum sheathing to stop leaks. Enough materials remain to replace the cabin roofing next year. A wooden deck was built between the cabin and the warehouse.

The camp was closed June 12, reopened June 27 and closed for the season August 15.

FENCE OPERATION

The fence was installed on June 28 and was operational at 08:32 of June 29. A total of 80 sand bags filled with rocks were used to plug holes under and between the fence frames. Fifteen bags were required to plug the largest hole under the east end of the fence opposite the cabin. High water complicated the hole patching operation and the fence was not made 100% fish tight until July 9.

Fish were counted through the fence by a two man crew working one hour shifts as described by Thompson and Goruk (1988). Counts were made from June 29 to August 12.

Dead fish caught in the fence were collected and sampled. Samples consisted of hypural length, sex and scales. Scales were collected onto scale books and sent to the Scale lab in Vancouver. Comparisons of age and sex compositions at the beginning, middle and end of the run were made.

RESULTS & DISCUSSION

Weather conditions and water levels recorded at the Docee River Fence are shown in Table 1 (Fig. 2).

The first sockeye were counted through the fence on June 30. Fish moved in slowly until July 5 when over 5000 sockeye were counted. Daily counts of this magnitude continued until July 8 when only 545 sockeye were counted. Relatively low counts until July 10 could be attributed to the commercial net fishery in Smith Inlet July 3 to 5. Counts increased dramatically to a maximum of 43,742 fish on July 12. Subsequent counts fluctuated between 5000 and 10,000 until late July when the run finished. Daily and cumulative counts of sockeye and chinook appear in Table 2 (Figs. 3 & 4). Sockeye fisheries in Smith Inlet were held July 10 to 14 and July 17 to 31.

A total of 201,963 sockeye were counted through the Docee River fence by August 12. Total escapement was estimated at 207,000.

Commercial fisheries caught 254,574 sockeye and Indian food fishing accounted for 73 sockeye for a total of 254,647 fish harvested. The total Long Lake sockeye stock was 461,647 fish.

Table 3 describes the length frequency of all fish sampled broken down by age and sex. Mean lengths for each age/sex group are given with standard deviations. Of the 333 sockeye sampled, 283 were aged. Sockeye aged 5_2 represented 57% of the sample and had a mean hypural length of 51 cm. Sockeye aged 4_2 represented 42% of the sample with a mean hypural length of 44 cm. Differences in mean hypural length between sexes of the same age were negligible. A single age 5_3 female was collected in the sample.

Breaks in the data between July 7 and July 20 and between July 29 and August 10 allowed the partitioning of the data into three time frames. Samples taken from June 28 to July 7, July 20 to 29 and August 10 to 14 will be referred to as early, mid and late timed fish respectively. Females predominated early and late in the run and males predominated the mid portion of the run (Figure 5). The final female:male ratio was 1.1:1. Age 5_2 sockeye were predominant early and late in the run and age 4_2 fish were predominant the mid portion of the run (Figure 6). Although no data was collected after July 28 in 1987 the early and mid timed data support the same trends as in 1988 (Bachen, Thomson & Goruk, 1988). Frequency by sex and age are shown in Figure 7 and the relative proportions (normalizing sample size) are shown in Figure 8.

Six sockeye and three coho were trapped from July 30 to August 8. High water made it impossible to use the traps in early July.

REFERENCES

Bachen, S.K., B.L. Thomson and R.D. Goruk. 1988. Docee River counting fence. 1987 Operations. Can. Data Rep. Fish. Aquat. Sci. 704: iv + 16 p.

Thomson, B.L., and R.D. Goruk. 1988. An historical overview of the Docee River Enumeration Program 1963-1987. Can. Data Rep. Fish. Aquat. Sci. 702: iii + 8 p.

TABLE 1. 1987 Docee River daily weather and river levels.

DATE	RIVER LEVEL (M) AM	PM	WEATHER	
MAY 30		1.58		PM-overcast, rain, SE
MAY 31	1.52	1.49	AM-overcast, rain	PM-90% cloud
JUNE 01	1.45	1.45	AM-clear	PM-overcast, rain
JUNE 02	1.43	1.43	AM-overcast	PM-50% overcast, rain
JUNE 03	1.37	1.34	AM-rain, SE 30	PM-50% cloud, calm
JUNE 04	1.31	1.31	AM-clear	PM-clear
JUNE 05	1.30	1.31	AM-rain	PM-overcast
JUNE 06	1.26	1.26	AM-clear	PM-light rain
JUNE 07	1.28	1.25	AM-overcast	PM-some light rain
JUNE 08	1.25	1.19	AM-rain	PM-overcast
JUNE 09	1.16	1.15	AM-70% cloud	PM-clear
JUNE 10	1.11	1.10	AM-low overcast	PM-overcast
JUNE 11	1.10	1.09	AM-rain	PM-50% cloud
JUNE 12	1.08		AM-clear	
JUNE 13			AM-clear	PM-clear
*				
JUNE 28	1.37	1.31	AM-overcast, cool	PM-clear
JUNE 29	1.28	1.22	AM-clear, cool	PM-clear
JUNE 30	1.19	1.19	AM-overcast	PM-light rain
JULY 01	1.19	1.19	AM-rain	PM-rain
JULY 02	1.28	1.28	AM-rain	PM-cloudy, clearing
JULY 03	1.31	1.26	AM-clear, cold	PM-high cloud
JULY 04	1.25	1.19	AM-clear, cool	PM-clear, rain 2100hr
JULY 05	1.19	1.16	AM-fog, cloudy	PM-70% cloud
JULY 06	1.16	1.14	AM-cloudy, cool	PM-cloudy
JULY 07	1.16	1.10	AM-overcast, cool	PM-clear
JULY 08	1.13	1.10	AM-30% cloud, cool	PM-clear
JULY 09	1.13	1.13	AM-overcast	PM-clear, warm
JULY 10	1.16	1.16	AM-low overcast, cool	PM-low overcast
JULY 11	1.16	1.16	AM-light rain	PM-cloudy, rain
JULY 12	1.16	1.16	AM-cloudy, rain, cool	PM-cloudy, rain, cool
JULY 13	1.28	1.40	AM-heavy rain	PM-heavy rain
JULY 14	1.46	1.49	AM-overcast	PM-rain
JULY 15	1.46	1.43	AM-overcast	PM-overcast
JULY 16	1.40	1.40	AM-fog, cool	PM-clear, W wind
JULY 17	1.40	1.28	AM-clear, cool	PM-clear, warm
JULY 18	1.28	1.22	AM-clear	PM-clear
JULY 19	1.22	1.22	AM-fog	PM-sunny, hot
JULY 20	1.25	1.22	AM-fog, clear 0930hr	PM-clear, hot
JULY 21	1.28	1.25	AM-fog	PM-cloud, sunny breaks
JULY 22	1.25	1.22	AM-60% overcast, rain	PM-sunny, hot
JULY 23	1.19	1.19	AM-overcast, cool	PM-90% overcast, cool
JULY 24	1.16	1.19	AM-30% cloudy	PM-cloudy, rain
JULY 25	1.19	1.22	AM-overcast, NE wind	PM-scattered cloud
JULY 26	1.25	1.25	AM-overcast, rain	PM-high overcast
JULY 27	1.22	1.19	AM-high overcast	PM-overcast
JULY 28	1.19	1.16	AM-light rain	PM-light rain
JULY 29	1.16	1.16	AM-overcast	PM-overcast
JULY 30	1.13	1.10	AM-90% overcast	PM-clear
JULY 31	1.07	1.04	AM-80% overcast, cool	PM-scattered cloud
AUG 01	1.04	0.98	AM-20% overcast, NE	PM-clear, hot
AUG 02	0.98	0.94	AM-clear, cool	PM-clear, hot
AUG 03	0.94	0.91	AM-clear	PM-clear
AUG 04	0.91	0.94	AM-low overcast, rain	PM-cloud, light rain
AUG 05	0.94	0.94	AM-overcast, cool	PM-scattered cloud
AUG 06	0.91	0.90	AM-high overcast	PM-overcast
AUG 07	0.88	0.85	AM-overcast, rain	PM-rain
AUG 08	0.91	1.01	AM-heavy rain	PM-rain
AUG 09	1.19	1.31	AM-low overcast, rain	PM-scattered cloud
AUG 10	1.31	1.28	AM-overcast, cool	PM-sunny, some cloud
AUG 11	1.25	1.20	AM-overcast	PM-clear
AUG 12	1.16	1.13	AM-fog	PM-clear, fog late PM

*Camp open May 30 to June 12 and June 28 to Aug 15
**Fence in June 29 PM, Fence out August 15

TABLE 2. 1988 Docee River fence daily counts.

DATE	DAILY SOCKEYE	DAILY CHINOOK	CUMULATIVE SOCKEYE	CUMULATIVE CHINOOK	COMMENTS
JUNE 29	0		0	0	FENCE IN 0832
30	93		93	0	
JULY 1	775		868	0	
2	20		888	0	9 FENCE DEAD
3	422		1310	0	
4	33		1343	0	SEAL ABOVE FENCE
5	5777		7120	0	
6	4420		11540	0	
7	6379		17919	0	
8	545		18464	0	
9	152		18616	0	
10	180		18796	0	
11	12950		31746	0	
12	43742		75488	0	
13	13508		88996	0	
14	4698		93694	0	
15	8629		102323	0	
16	10264		112587	0	
17	8691		121278	0	
18	6157		127435	0	
19	14329		141764	0	
20	11696		153460	0	
21	9645		163105	0	
22	4890		167995	0	
23	4665		172660	0	
24	4933		177593	0	
25	6873		184466	0	
26	1245		185711	0	
27	1962		187673	0	
28	3809		191482	0	
29	1702		193184	0	1 SEAL
30	863		194047	0	
31	487		194534	0	
AUG 1	1203	1	195737	1	
2	742	1	196479	2	
3	860	1	197339	3	
4	690	2	198029	5	
5	213		198242	5	
6	360	6	198602	11	
7	238	8	198840	19	
8	511	22	199351	41	
9	854	13	200205	54	
10	1126	4	201331	58	
11	312	4	201643	62	
12	320	1	201963	63	

TABLE 3. Length frequency at age for Docee River sockeye salmon, 1988.

Hypural Length (cm)	AGE 4_2		5_2		5_3	Unknown	
	Males	Females	Males	Females	Females	Males	Females
38	2	1					
39	1						
40	1						
41	4	6				1	1
42	4	4		1			2
43	8	8					
44	7	5					1
45	18	12	1			1	1
46	6	11	3		1		5
47	9	2		6		2	1
48	6	2	2	9		3	3
49	2		9	10		2	5
50		1	6	24		5	3
51			15	14			3
52			9	16		3	1
53			10	9		2	1
54			5	3		1	
55			4	2			1
56			2	1		1	
57			1				
58						1	
Mean Length (cm)	44.5	44.2	50.4	51.3	45.5		
Std. Dev.	2.4	2.2	2.1	2.4	-		
TOTAL (N)	68	52	67	95	1	22	28

Age Distribution (percent)

Age 4_2: 42.4%
Age 5_2: 57.2%
Age 5_3: 0.4%

Total fish aged: 283
Total fish sexed and measured: 333

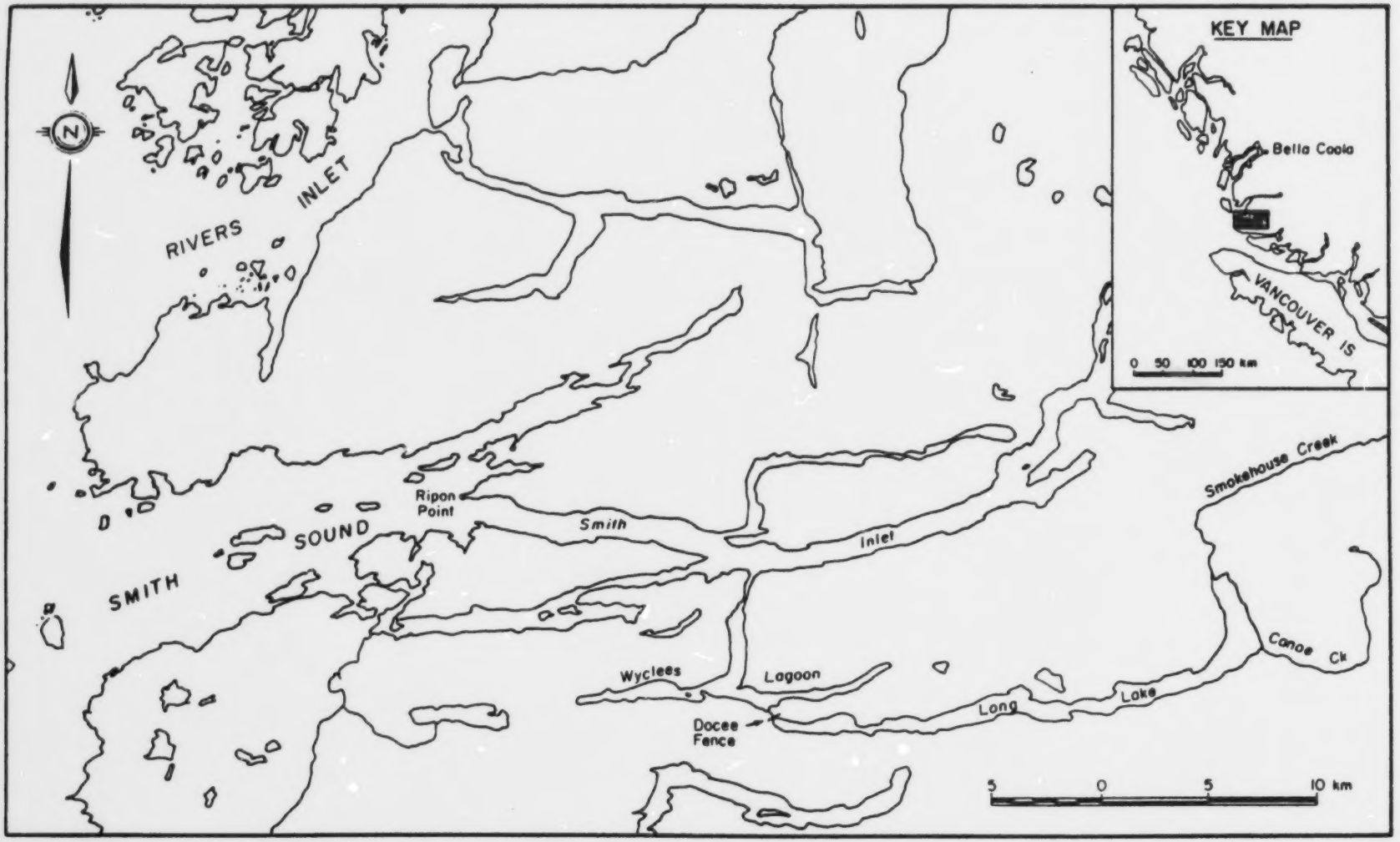


FIGURE 1. Location of Docee River, Smith Sound.

FIGURE 2. 1988 DOCEE RIVER

MORNING WATER LEVELS (M)

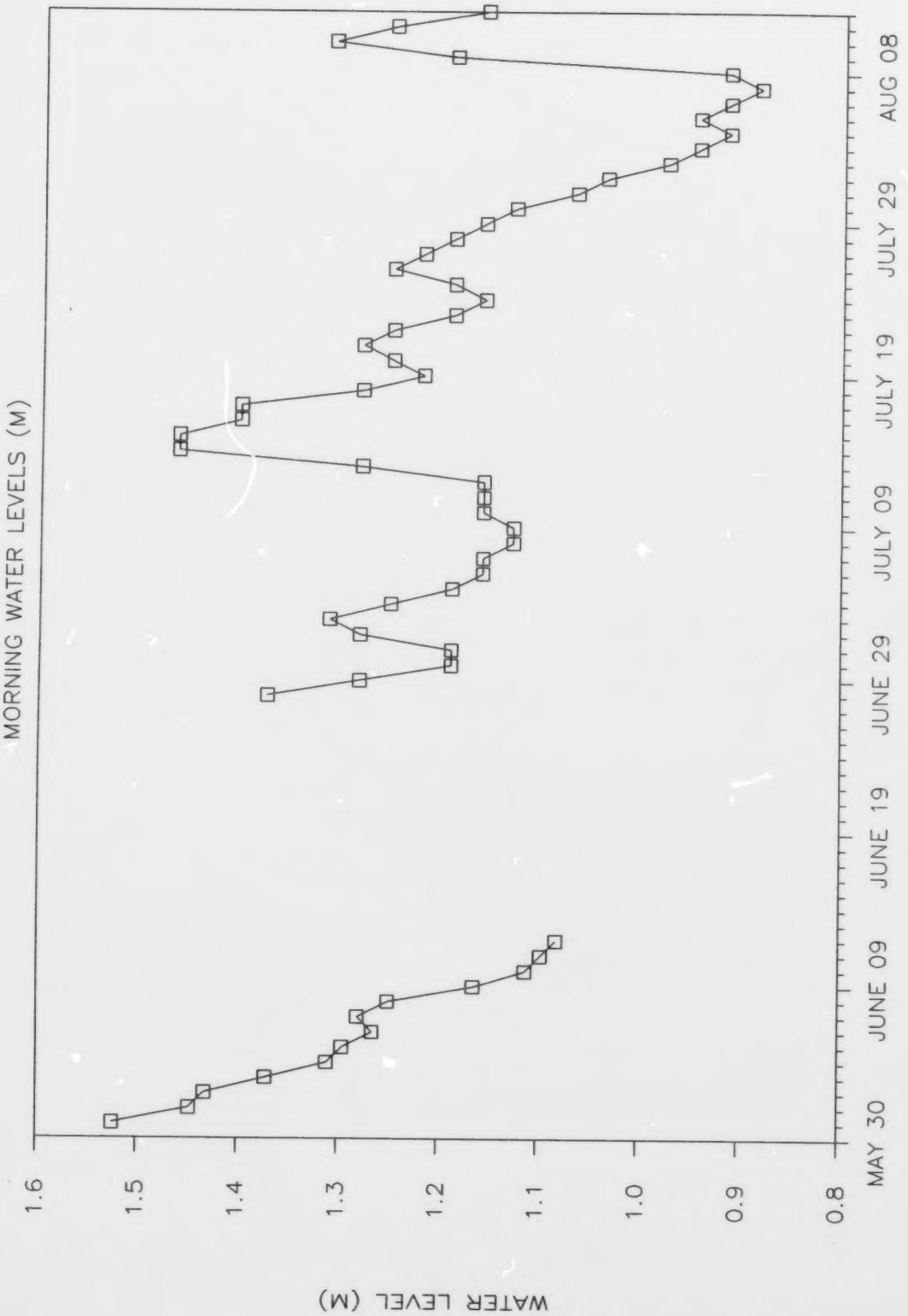


FIGURE 3. 1988 DOCEE RIVER

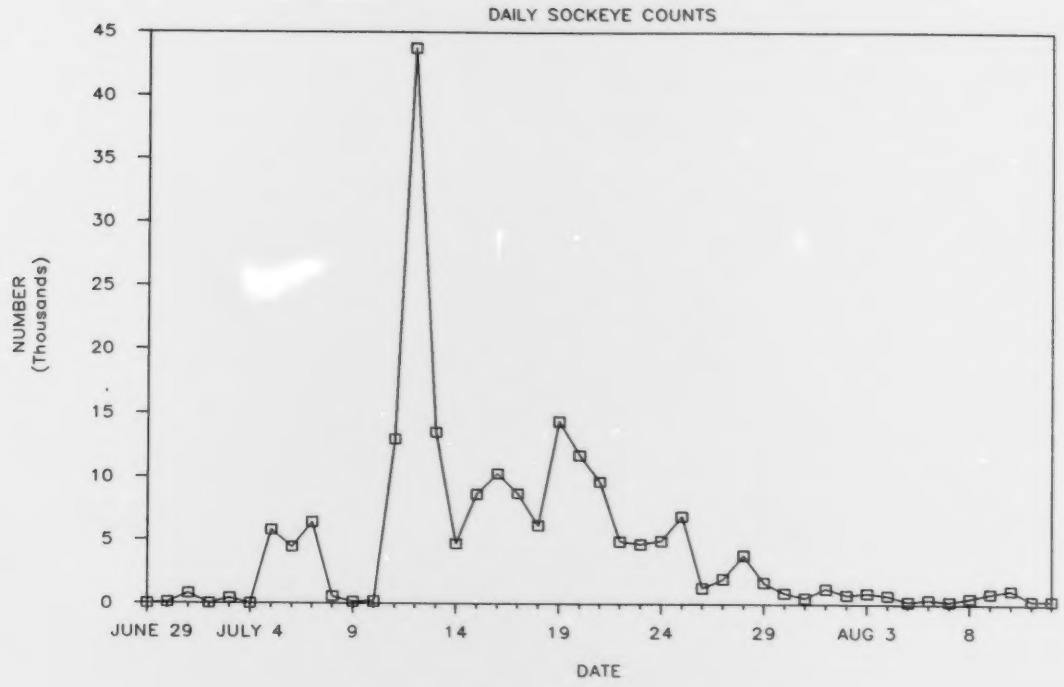


FIGURE 4. 1988 DOCEE RIVER

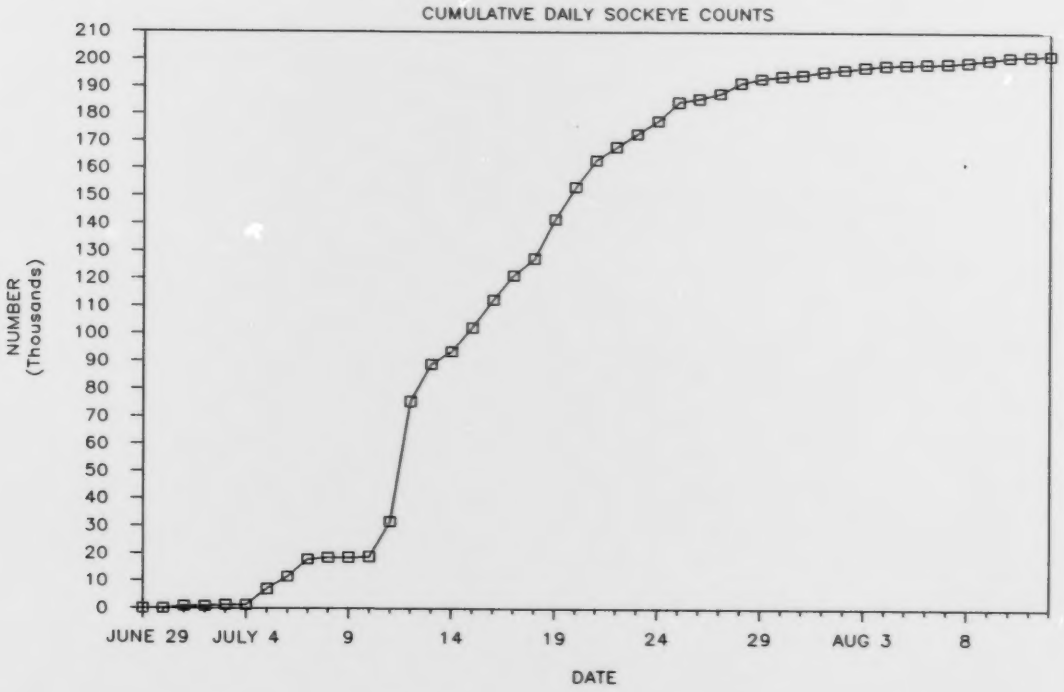


FIGURE 5. FREQUENCY BY SEX OF EARLY, MID & LATE TIMED DOCEE RIVER SOCKEYE, 1988

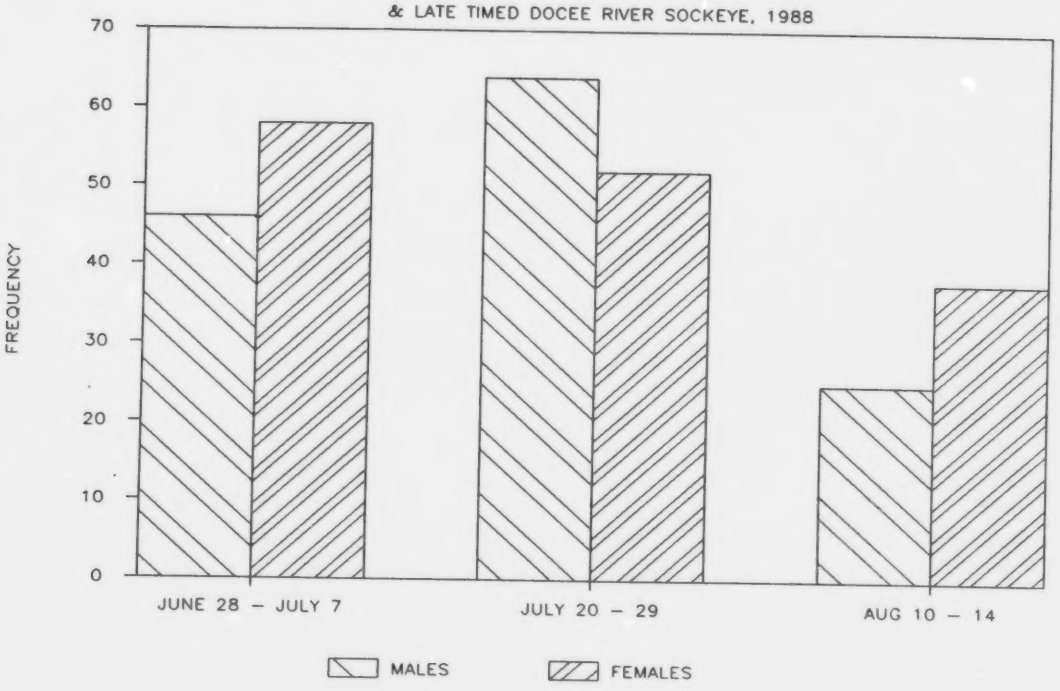


FIGURE 6. FREQUENCY BY AGE OF EARLY, MID & LATE TIMED DOCEE RIVER SOCKEYE, 1988

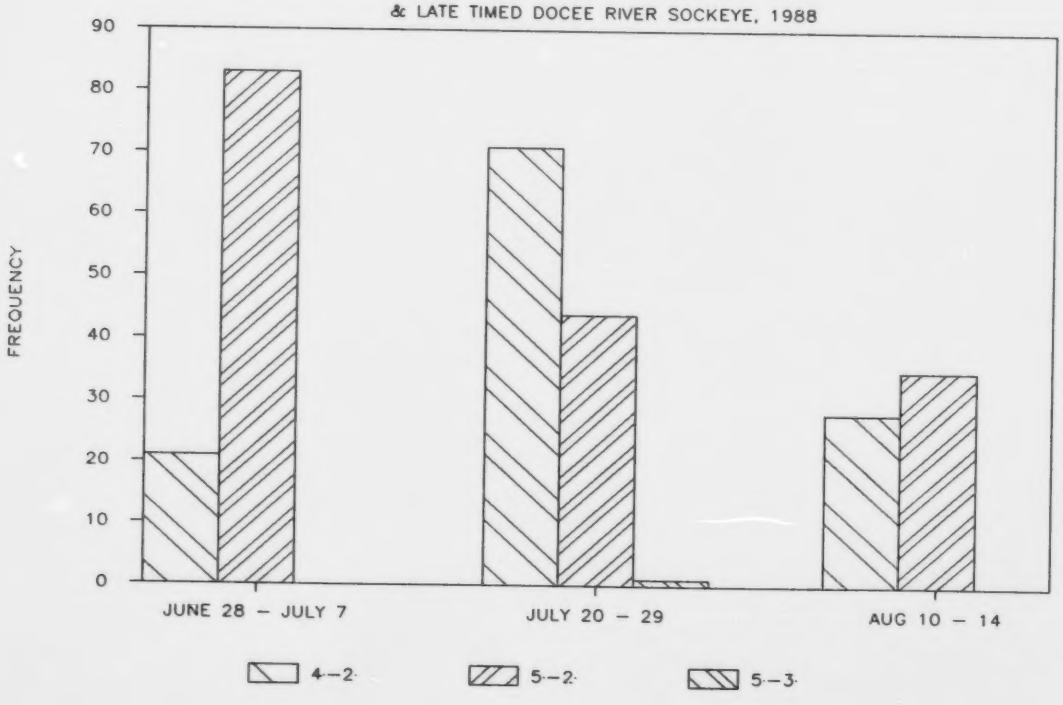


FIGURE 7. FREQUENCY BY SEX & AGE OF EARLY, MID & LATE TIMED DOCEE RIVER SOCKEYE, 1988

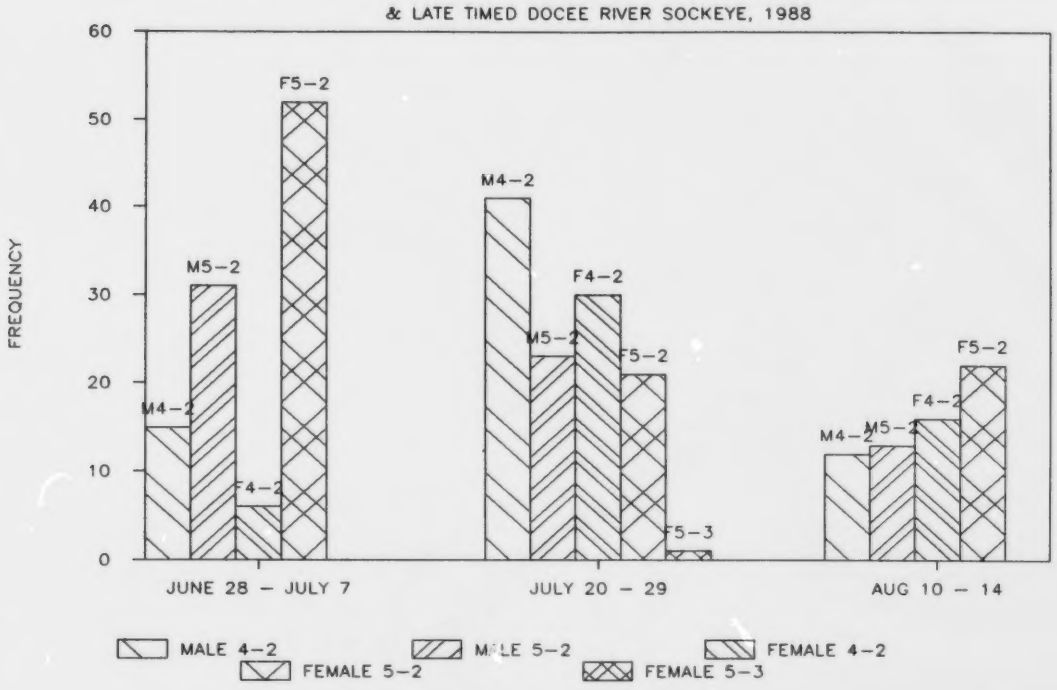
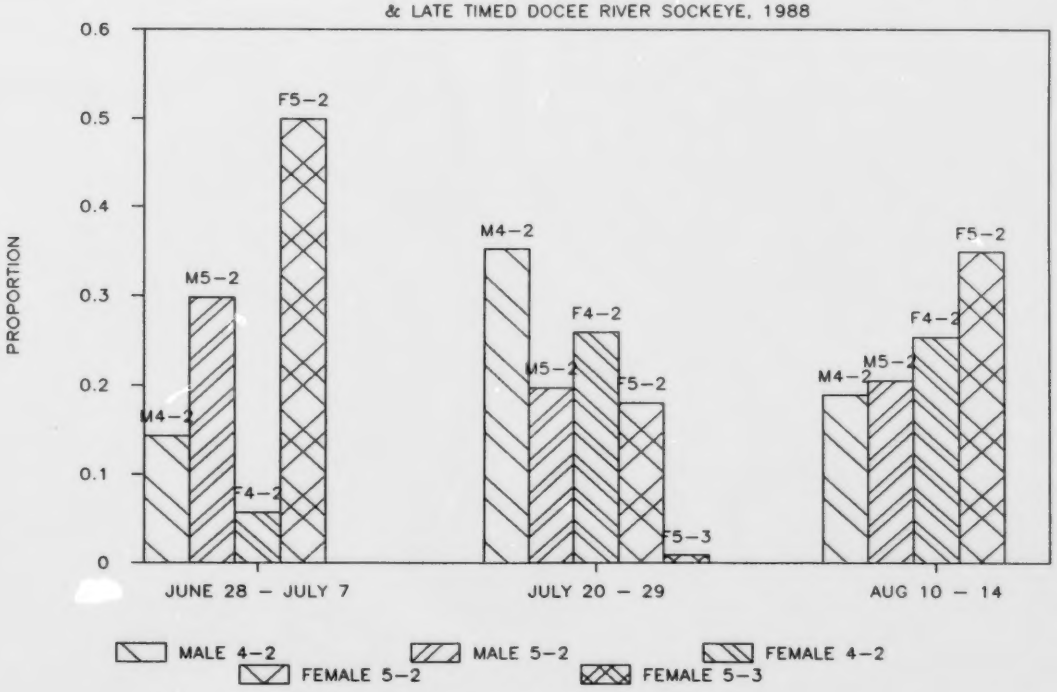


FIGURE 8. PROPORTIONS BY SEX & AGE OF EARLY, MID & LATE TIMED DOCEE RIVER SOCKEYE, 1988



APPENDIX I. 1988 Docee fence sockeye samples.

DATE	SEX	LENGTH	AGE	DATE	SEX	LENGTH	AGE
JUNE 28	M	56.0	5_2	JULY 6	M	52.0	5_2
JULY 1	M	53.0	5_2	JULY 6	M	45.0	4_2
JULY 1	F	52.0	5_2	JULY 6	F	53.0	5_2
JULY 1	F	49.0	5_2	JULY 6	F	47.0	5_2
JULY 2	M	52.0	5_2	JULY 6	F	52.0	5_2
JULY 2	F	50.0	5_2	JULY 6	M	49.0	5_2
JULY 2	M	56.0	5_2	JULY 6	F	51.0	5_2
JULY 2	M	54.0	5_2	JULY 6	M	46.0	5_2
JULY 2	M	51.0	5_2	JULY 6	M	51.0	5_2
JULY 2	M	52.5	5_2	JULY 6	F	53.0	5_2
JULY 2	F	51.0	5_2	JULY 6	F	50.0	5_2
JULY 2	M	49.0	4_2	JULY 6	M	49.0	5_2
JULY 2	F	51.0	5_2	JULY 6	F	49.0	5_2
JULY 2	F	49.0	5_2	JULY 6	M	53.0	5_2
JULY 2	F	50.0	5_2	JULY 6	M	54.0	5_2
JULY 2	F	51.0	5_2	JULY 6	F	52.0	5_2
JULY 2	M	55.0	5_2	JULY 6	F	52.0	5_2
JULY 2	F	53.0	5_2	JULY 6	F	50.0	5_2
JULY 2	F	52.0	5_2	JULY 6	M	50.0	5_2
JULY 2	M	48.0	5_2	JULY 6	M	51.0	5_2
JULY 2	F	53.0	5_2	JULY 6	F	50.0	5_2
JULY 2	F	52.0	5_2	JULY 6	F	49.0	5_2
JULY 2	F	51.0	5_2	JULY 6	F	48.0	5_2
JULY 2	F	50.0	5_2	JULY 6	M	42.0	4_2
JULY 3	F	55.0	5_2	JULY 6	M	50.0	5_2
JULY 3	F	48.0	5_2	JULY 6	M	50.0	5_2
JULY 3	M	55.0	5_2	JULY 6	M	51.0	5_2
JULY 3	F	50.0	5_2	JULY 6	F	53.0	5_2
JULY 5	M	44.0	4_2	JULY 6	F	51.5	
JULY 5	F	48.0	4_2	JULY 6	M	44.5	
JULY 5	F	55.0	5_2	JULY 6	M	48.0	
JULY 5	M	47.0	4_2	JULY 6	M	57.5	
JULY 5	F	52.0	5_2	JULY 6	F	48.0	
JULY 5	M	55.0	5_2	JULY 6	M	48.5	
JULY 5	F	53.0	5_2	JULY 6	M	48.0	
JULY 5	F	50.0	5_2	JULY 6	F	50.5	
JULY 5	F	54.0	5_2	JULY 6	F	50.5	
JULY 5	F	54.0	5_2	JULY 6	M	47.0	
JULY 5	M	50.0	5_2	JULY 6	F	46.0	
JULY 5	F	51.0	5_2	JULY 6	F	47.0	
JULY 5	F	47.0	5_2	JULY 6	F	48.0	
JULY 5	M	38.0	4_2	JULY 6	M	51.5	
JULY 5	M	51.0	5_2	JULY 6	M	50.0	
JULY 5	F	47.5	5_2	JULY 6	F	40.5	
JULY 5	F	50.0	5_2	JULY 6	M	41.0	
JULY 5	F	51.5	5_2	JULY 6	F	46.0	
JULY 5	M	52.0	5_2	JULY 7	F	47.0	5_2
JULY 5	M	41.0	4_2	JULY 7	F	47.0	5_2
JULY 5	F	48.0	5_2	JULY 7	F	48.0	5_2
JULY 5	M	48.0	5_2	JULY 7	M	49.0	5_2

APPENDIX I CONTINUED. 1988 Docee fence sockeye samples.

DATE	SEX	LENGTH	AGE
JULY 7	F	50.0	
JULY 7	F	50.0	5_2
JULY 7	F	50.0	5_2
JULY 7	M	50.0	5_2
JULY 7	F	41.0	4_2
JULY 7	M	43.0	4_2
JULY 7	M	44.0	4_2
JULY 7	F	52.0	5_2
JULY 7	M	45.0	4_2
JULY 7	F	56.0	5_2
JULY 7	F	43.0	4_2
JULY 7	F	45.0	4_2
JULY 7	F	49.0	5_2
JULY 7	M	43.0	4_2
JULY 7	M	51.0	5_2
JULY 7	M	53.0	5_2
JULY 7	F	49.0	5_2
JULY 7	F	46.0	4_2
JULY 7	M	41.0	4_2
JULY 7	M	43.0	4_2
JULY 7	M	41.0	4_2
JULY 7	F	44.0	4_2
JULY 7	F	42.0	
JULY 7	M	40.0	4_2
JULY 20	M	49.0	5_2
JULY 20	M	43.0	4_2
JULY 20	F	53.0	5_2
JULY 20	M	43.0	4_2
JULY 20	M	51.0	5_2
JULY 20	F	42.0	4_2
JULY 20	M	54.0	5_2
JULY 20	F	44.0	4_2
JULY 20	M	46.0	5_2
JULY 20	F	45.0	4_2
JULY 20	F	46.0	4_2
JULY 20	M	49.0	5_2
JULY 20	M	49.0	5_2
JULY 20	M	45.0	4_2
JULY 20	F	47.0	4_2
JULY 20	M	48.0	4_2
JULY 20	M	43.0	4_2
JULY 20	F	49.0	
JULY 20	M	44.0	4_2
JULY 20	F	43.0	4_2
JULY 20	M	44.0	4_2
JULY 20	F	42.0	
JULY 20	F	42.0	5_2
JULY 20	M	48.0	4_2
JULY 20	M	44.0	4_2
JULY 25 TO 29	F	43.0	4_2
	M	50.0	
	M	45.0	4_2
	F	41.0	4_2
	M	42.0	4_2
	F	44.0	4_2
	F	45.0	4_2
	M	53.0	5_2
	F	48.5	5_2
	M	46.0	5_2
	M	52.0	5_2
	M	48.5	4_2
	F	44.5	4_2
	F	41.0	4_2
	F	42.5	4_2
	M	52.5	5_2
	M	46.5	4_2
	M	47.0	4_2
	F	45.0	
	M	45.0	4_2
	F	46.0	4_2
	F	44.5	4_2
	M	52.5	5_2
	M	46.5	4_2
	M	45.0	4_2
JULY 25 TO 29	F	48.5	5_2
	M	45.0	4_2
	M	48.0	4_2
	M	45.0	5_2
	M	53.5	5_2
	M	44.5	4_2
	M	45.5	4_2
	F	50.5	5_2
	M	45.5	4_2
	F	49.0	
	M	43.0	4_2
	F	45.5	
	F	43.0	4_2
	F	45.0	4_2
	M	45.0	4_2
	M	44.0	4_2
	M	44.5	4_2
	M	45.0	4_2
	F	43.5	4_2
	M	46.5	4_2
	M	50.5	5_2
	F	46.0	
	M	46.5	4_2
	M	46.5	4_2
	F	43.5	4_2

APPENDIX I CONTINUED. 1988 Docee fence sockeye samples.

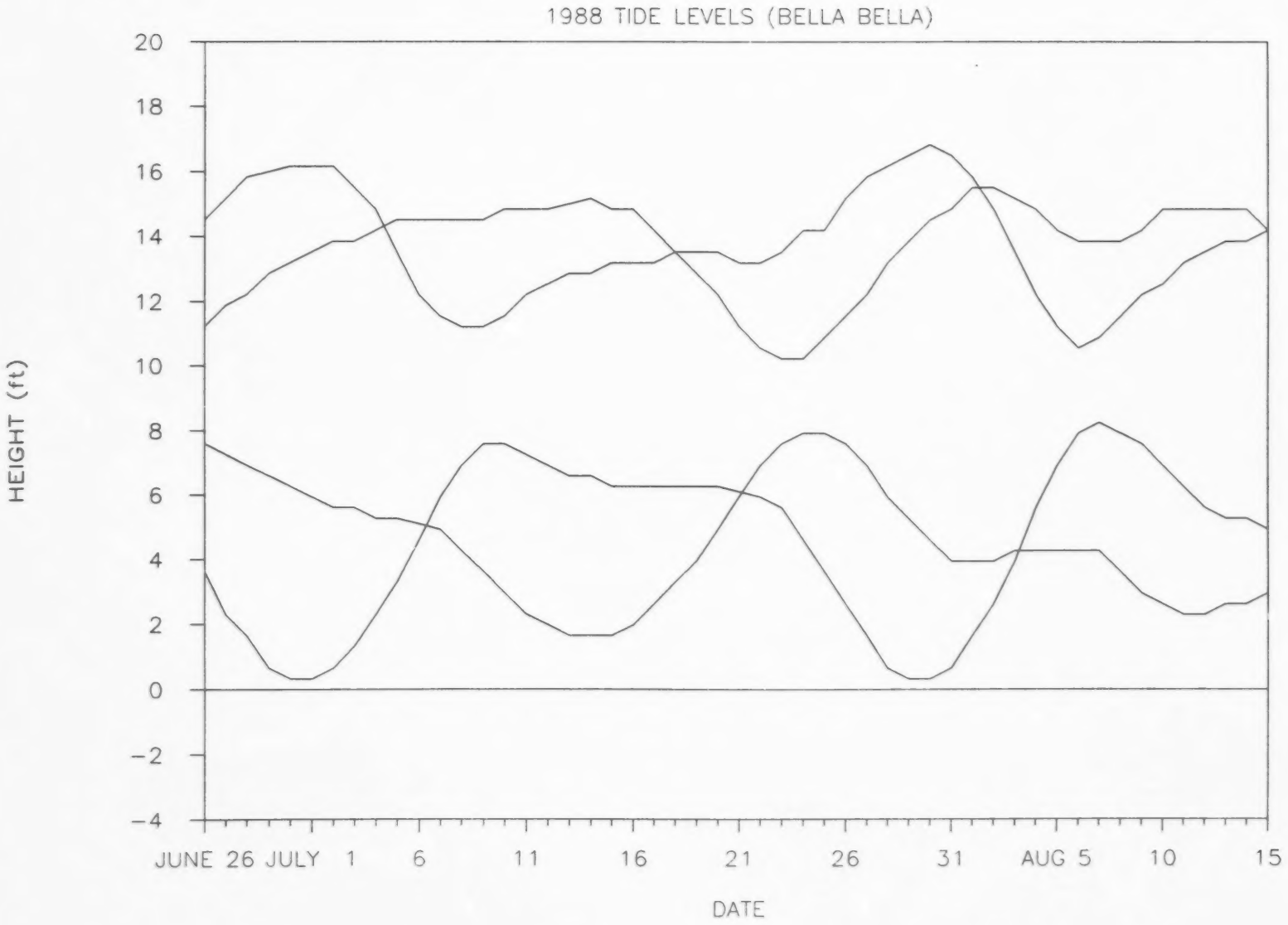
DATE	SEX	LENGTH	AGE	DATE	SEX	LENGTH	AGE
JULY	M	50.0	5_2	AUG 10	F	42.0	4_2
25 TO 29	M	53.5	5_2	AUG 10	F	42.0	4_2
	F	50.0	5_2	AUG 10	M	38.0	4_2
	M	50.5	5_2	AUG 10	F	48.0	4_2
	F	49.5	5_2	AUG 10	M	53.0	$_2$
	F	52.5	5_2	AUG 10	M	53.0	5_2
	M	46.5	4_2	AUG 10	F	45.0	4_2
	F	50.0	5_2	AUG 10	M	49.0	5_2
	F	46.5	5_2	AUG 10	M	53.0	5_2
	F	49.5	5_2	AUG 10	F	43.0	4_2
	F	41.5	4_2	AUG 10	F	41.0	4_2
	F	50.0	$_2$	AUG 10	M	49.0	5_2
	F	49.5	5_2	AUG 10	M	51.0	5_2
	M	41.5	4_2	AUG 10	F	50.0	5_2
	F	50.0	4_2	AUG 10	F	48.0	5_2
	M	50.5	5_2	AUG 10	F	50.5	5_2
	F	52.5	5_2	AUG 10	F	49.5	5_2
	M	45.0	4_2	AUG 10	F	50.5	5_2
	M	43.5	4_2	AUG 10	F	52.0	5_2
	M	44.5	4_2	AUG 10	M	51.0	5_2
	F	50.5	5_2	AUG 10	M	52.0	5_2
	F	45.5	5_2	AUG 10	F	48.0	5_2
	F	45.5	4_3	AUG 10	F	49.0	5_2
	F	44.5	4_2	AUG 10	F	51.0	$_2$
	F	50.5	5_2	AUG 12	F	51.0	5_2
JULY	F	50.5	5_2	AUG 12	M	53.0	5_2
25 TO 29	M	51.5	5_2	AUG 12	M	52.0	5_2
	M	47.5	4_2	AUG 12	F	50.0	5_2
	M	45.0	4_2	AUG 12	M	43.0	4_2
	M	55.0	5_2	AUG 12	M	46.0	4_2
	M	46.0	4_2	AUG 12	F	48.0	5_2
	M	48.0	4_2	AUG 12	M	46.5	4_2
	F	50.0	5_2	AUG 12	M	46.0	4_2
	M	52.0	5_2	AUG 12	M	45.0	4_2
	F	47.0	5_2	AUG 12	M	45.5	4_2
	M	51.0	5_2	AUG 12	F	52.0	5_2
	F	46.0	4_2	AUG 12	M	57.0	5_2
	F	46.0	4_2	AUG 12	F	45.0	4_2
	F	45.0	4_2	AUG 12	F	52.0	5_2
	F	49.0	5_2	AUG 12	F	54.0	5_2
	F	52.0	5_2	AUG 12	M	52.5	
	M	45.0	4_2	AUG 12	M	52.0	
	M	45.0	4_2	AUG 12	M	56.0	
	M	50.5	5_2	AUG 12	F	41.0	4_2
	F	51.5	5_2	AUG 12	M	54.0	
	F	45.0	4_2	AUG 12	M	51.5	5_2
	M	50.0		AUG 12	F	45.5	4_2
	F	43.0	4_2	AUG 12	F	50.0	5_2
	F	37.5	4_2	AUG 12	F	52.5	
	F	46.5	4_2				

APPENDIX I CONTINUED. 1988 Docee fence sockeye samples.

DATE	SEX	LENGTH	AGE	DATE	SEX	LENGTH	AGE
AUG 13	F	55.0					
AUG 13	F	50.0	5_2				
AUG 13	F	52.0	5_2				
AUG 13	M	48.0	4_2				
AUG 13	F	45.0	4_2				
AUG 13	F	44.0					
AUG 13	F	46.0	4_2				
AUG 13	F	46.0	4_2				
AUG 13	F	46.0	4_2				
AUG 13	F	46.0	4_2				
AUG 13	F	49.0					
AUG 13	M	47.0					
AUG 13	F	51.0	5_2				
AUG 13	M	45.0	4_2				
AUG 13	M	49.0	5_2				
AUG 14	M	48.5					
AUG 14	M	50.5	5_2				
AUG 14	M	50.0					
AUG 14	F	52.0	5_2				
AUG 14	M	41.0	4_2				
AUG 14	F	49.0					
AUG 14	M	48.0					
AUG 14	F	42.5	4_2				
AUG 14	F	46.0					
AUG 14	F	48.0					
AUG 14	F	49.0					
AUG 14	F	50.0	5_2				
AUG 14	F	49.5					
AUG 14	M	50.0					
AUG 14	M	52.0					
AUG 14	F	48.0	5_2				
AUG 14	F	50.0	5_2				
AUG 14	M	41.5	4_2				
AUG 14	F	41.0	4_2				
AUG 14	M	39.0	4_2				

Appendix 2: Docee River sockeye data sorted by age, sex and date.

	JUNE 28 - JULY 7		JULY 20 - 29		AUG 10 - 14		Total	
Males	N	%	N	%	N	%		
4_2	15	14.4%	41	35.3%	12	19.0%	68	24.0%
5_2	31	29.8%	23	19.8%	13	20.6%	67	23.7%
Aged males	46	44.2%	64	55.2%	25	39.7%	135	47.7%
Age unknown	9		2		11		22	
Females								
4_2	6	5.8%	30	25.9%	16	25.4%	52	18.4%
5_2	52	50.0%	21	18.1%	22	34.9%	95	33.6%
5_3		0.0%	1	0.9%		0.0%	1	0.4%
Aged females	58	55.8%	52	44.8%	38	60.3%	148	52.3%
Age unknown	11		7		10		28	



Appendix 3. Tidal maxima and minima at Bella Bella, 1988.